APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/654,738	09/04/2003	Deniz Senturk		5233

21718   7590   04/16/2008
LEE & HAYES PLLC
SUITE 500
421 W RIVERSIDE
SPOKANE, WA 99201

EXAMINER
KARDOS, NEIL R

ART UNIT	PAPER NUMBER
3623	

NOTIFICATION DATE	DELIVERY MODE
04/16/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

lhpto@leehayes.com

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 February 2008*.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11 and 29* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-11 and 29* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
       1.☐ Certified copies of the priority documents have been received.
       2.☐ Certified copies of the priority documents have been received in Application No. _____.
       3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date *12/15/03, 8/21/07 (2), 3/21/08*.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1.   This is a non-final first Office action on the merits. Currently, claims 1-11 and 29 are

pending.

Election/Restrictions

2.   Claims 12-28 and 30-31 are withdrawn from further consideration pursuant to 37 CFR

1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking

claim. Applicant timely traversed the restriction (election) requirement in the reply filed on

February 19, 2008.

Claim Objections

3.   Claim(s) 11 is/are objected to under 37 CFR 1.75(c), as being of improper dependent

form for failing to further limit the subject matter of a previous claim. Applicant is required to

cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or

rewrite the claim(s) in independent form. These claims are directed to computer-readable

mediums having computer-executable instructions for performing the steps of claim 1. These

claims are improper because they fail the "infringement test" (see MPEP 608.01(n), Section III).

Applying the infringement test, what is needed to infringe claim 11 is, for example a CD-ROM

having computer executable code that if and when executed would cause a computer to do the

steps recited in claim 1. However, such a CD-ROM would not infringe the method steps of

claim 1 since the CD-ROM itself never performs any of the active steps required by the method

of claims 1. In other words, mere possession of such a CD-ROM would infringe claim 11, but

would not infringe claim 1. Thus, claim 11 is an improper dependent claim.

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his invention.

5.   **Claim 29 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for**

failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention.

Claim 29 recite(s) a(n) apparatus comprising a model and logic. These elements do not

necessarily constitute a physical structure (i.e. they could be software). Rather, they could

simply be procedures that are followed in order to achieve a desired outcome (i.e. a collection of

computer instructions). However, these procedures are not tangibly embodied on a computer-

readable medium providing physical structure. Thus, it is not clear how the elements of the

claim(s), which lack a physical structure, constitute a(n) apparatus.

Claim Rejections - 35 USC § 101

6.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or
> any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and
> requirements of this title.

7.   **Claims 1-11 and 29 are rejected under 35 U.S.C. 101 because the claimed invention**

is directed to non-statutory subject matter.

For a claimed invention to be statutory, the claimed invention must produce a useful, tangible and concrete result. An invention which is eligible for patenting under 35 U.S.C 101, is in the "useful arts" when it is a machine, manufacture, process or composition of matter, which produces a useful, concrete and tangible result. The fundamental test for patent eligibility is thus to determine whether the claimed invention produces a useful tangible and concrete result. See AT&T v. Excel Communications Inc., 172 F.3d at 1358, 50 USPQ 2d at 1452 and State Street Bank & Trust Co. v. Signature Financial Group, Inc., 149 F.3d at 1373, 47 USPQ 2d at 1601 (Fed. Cir. 1998).

The test for practical application as applied by the examiner involves determining whether the claimed invention produces a useful, tangible, and concrete result. Utility may be evidenced by a specific (particular to a subject matter), substantial (real-world), and credible (logical) final result. Tangibility may be evidenced by a non-abstract real-world result. Concreteness may be evidenced by repeatability with substantially the same result.

Claims 1 and 29 fail to produce a useful, concrete, and tangible result. Claims 1 and 29 are directed to an apparatus and method for performing an analysis based on an incomplete data set. The analysis consists of generating a predicted value and modifying it to reduce error. This mathematical manipulation is an abstract idea that fails to produce a real-world result. The produced result (an electrical signal) is so broad as to encompass results that are not useful (i.e. specific or substantial). An electrical signal could be a beep, some text, or merely an internal signal that does not reveal any information to a user. For the same reasons, claims 1 and 29 fail to produce a tangible result. Because the claims do not produce a useful, concrete, and tangible final result, they do not fall within a statutory class of invention.

The dependent claims 2-11 are also rejected because they fail to add substantial

limitations to remedy the deficiencies of the claims that they depend from.

Claim 29 recite(s) a(n) apparatus comprising a model and logic. These elements do not

necessarily constitute a physical structure (i.e. they could be software). Rather, they could

simply be procedures that are followed in order to achieve a desired outcome (i.e. a collection of

computer instructions). However, these procedures are not tangibly embodied on a computer-

readable medium providing physical structure. The claim(s) do(es) not recite any physical

structures necessary to constitute a system. Therefore, the claim(s) do(es) not fall within a

statutory class of patentable subject matter.

Claim Rejections - 35 USC § 103

8.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

9.   **Claims 1-7, 11, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable**

over U.S. pre-grant publication number 2004/0064357 to Hunter et al ("Hunter") in view of

U.S. pre-grant publication number 2004/0088211 to Kakouros et al ("Kakouros").

Claims 1 and 29: Hunter discloses a method and apparatus for performing business-

related analysis using an electronic data processing apparatus based on an incomplete dataset,

comprising:

- providing a model implemented on the electronic data processing apparatus that is based on the incomplete dataset (see paragraphs 9, 11, and 32, disclosing correcting data analysis where data is not available);

- generating a predicted value using the model, wherein the predicted value contains an error attributed to information that is missing from the incomplete dataset (see paragraphs 9, 11, 30, and 32, disclosing correcting a predicted consumer behavior forecast);

- performing a trending operation using trending logic provided by the electronic data processing apparatus to derive a standardized score that pertains to a variance of the predicted value with respect to other predicted values (see paragraph 30, disclosing determining the spread/divergence between forecasted consumer purchasing behavior [first predicted value] and actual consumer purchasing behavior for a similar product [second predicted value]); and

- performing a de-trending operation using de-trending logic provided by the electronic data processing apparatus to reduce the error in the predicted value based the standardized score calculated in the trending logic and a consideration of actual values, the de-trending operation yielding an electrical signal representative of an output result (see paragraph 32, disclosing applying the correction factor obtained in the trending step to reduce the error in the predicted value).

Hunter does not explicitly disclose wherein the trending and de-trending operations occur in a specified time interval.

Kakouros teaches forecasting period of various lengths (see paragraph 66).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the forecasting windows taught by Kakouros to the predictions disclosed by Hunter. One of ordinary skill in the art would have been motivated to do so for the benefit of increasing the accuracy of evaluation metrics (see Kakouros: paragraph 66).

Claim 2: Hunter does not explicitly disclose wherein the trending operation comprises:

- computing a predicted mean of a collection of predicted values within the specified time interval;

- computing a predicted standard deviation of the predicted values within the specified time interval; and

- computing the standardized score by subtracting the predicted mean from the predicted value to produce a difference, and dividing the difference by the predicted standard deviation.

One of ordinary skill in the art would recognize this limitation as the computation of a standard z-score with the equation $z = (x - m) / s$, where x is the score to be standardized, m is the mean of the population, and s is the standard deviation of the population (see e.g. Wikipedia: Standard Score). Examiner takes Official Notice that it was well-known to one of ordinary skill in the statistical arts at the time the invention was made to standardize values using a z-score and its associated equation.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use well-known statistical techniques to determine the spread/divergence

disclosed by Hunter. One of ordinary skill in the art would have been motivated to do so for the benefit of conforming with statistical standards.

Claim 3: Hunter does not explicitly disclose wherein the de-trending operation comprises:

- computing an actual mean of the actual values within the specified time interval;

- computing an actual standard deviation of the actual values within the specified time interval; and

- computing the output result by multiplying the standardized score by the actual standard deviation to produce a product, and adding the actual mean to the product.

One of ordinary skill in the art would recognize this limitation as the computation of a standardized value using a z-score with the equation $x = zs + m$, where z is the standardization factor, m is the mean of the population, and s is the standard deviation of the population (see e.g. Wikipedia: Standard Score). This equation is an algebraic equivalent of the equation used in claim 2. Examiner takes Official Notice that it was well-known to one of ordinary skill in the statistical arts at the time the invention was made to standardize values using a z-score and its associated equation.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use well-known statistical techniques to determine an adjusted value based on the spread/divergence disclosed by Hunter. One of ordinary skill in the art would have been motivated to do so for the benefit of conforming with statistical standards.

Claim 4: Hunter discloses collecting the dataset from a business operation (see paragraphs 9, 11, 30, and 32, disclosing collecting predicted and actual consumer behavior).

Claim 5: Hunter discloses wherein the business operation includes multiple stages (see paragraph 12, disclosing using the technique at various stages of the business cycle).

Claim 6: Hunter discloses controlling the business operation based on the output result (see paragraph 3, disclosing reducing the risk of introducing products and services; paragraph 4, disclosing deciding whether to proceed to the next stage of introducing or marketing a new product; paragraph 5).

Claim 7: Hunter discloses wherein the incomplete dataset contains at least 30 percent missing information relative to a total population of potential information (see paragraph 15, disclosing NO or inadequate data).

Claim 11: Hunter discloses a computer readable medium including machine readable instruction for implementing the trending and de-trending operations recited in claim 1 (see paragraph 9; claim 1 citations).

10.	**Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hunter in view of Kakouros, and further in view of U.S. pre-grant publication number 2004/0054600 to Shike et al ("Shike").**

Claim 8: Hunter does not explicitly disclose wherein the business-related analysis pertains to a business operation in which vehicles are leased to customers, and wherein the dataset stores cycle time values that reflect the respective amounts of time for which the customers lease the vehicles.

However, Hunter does generally disclose predicting consumer behavior, which can be applied to a variety of fields.

Shike teaches a rental system where vehicles are rented to customers and vehicle return dates are predicted and stored (see paragraph 271).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the prediction techniques of Hunter to a vehicle rental or leasing business as taught by Shike. One of ordinary skill in the art would have been motivated to do so for the benefit of adapting the prediction model to be compatible with a specific business.

Claim 9: Hunter does not explicitly disclose wherein missing information from the incomplete dataset corresponds to vehicles that have not yet been returned by respective customers, and thus for which the cycle time values are not yet determined.

However, Hunter does generally disclose predicting consumer behavior with unknown data, which can be applied to a variety of fields.

Shike teaches a rental system with known and unknown predicted return dates (see paragraphs 271-277; specifically, paragraph 274, disclosing an "unknown" return date).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the unknown rental return date taught by Shike for the unknown demand taught by Hunter. One of ordinary skill in the art would have been motivated to do so for the benefit of adapting the prediction model to be compatible with a specific business.

Claim 10: Hunter does not explicitly disclose wherein the predicted value pertains to an estimate of when a customer will return a leased vehicle.

However, Hunter does generally disclose predicting consumer behavior, which can be applied to a variety of fields.

Shike teaches a rental system where vehicles are rented to customers and vehicle return dates are predicted and stored (see paragraph 271).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the estimated return date taught by Shike for the consumer demand taught by Hunter. One of ordinary skill in the art would have been motivated to do so for the benefit of adapting the prediction model to be compatible with a specific business.

Conclusion

11.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Neil R. Kardos whose telephone number is (571) 270-3443. The

examiner can normally be reached on Monday through Friday from 9 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Beth Van Doren can be reached on (571) 272-6737. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Neil R. Kardos
Examiner
Art Unit 3623

NRK
4/8/08

/Romain Jeanty/
Primary Examiner, Art Unit 3623